CLASSIFICATION OF HOLARCTIC SPECIES OF THE GENUS LOBESIA GUENEE, WITH DESCRIPTION OF PARALOBESIA GEN. NOV. (LEPIDOPTERA, TORTRICIDAE)

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The separation of the genera *Lobesia* Gn. and *Polychrosis* Rag., accepted by most modern authors, is according to KENNEL (1908, p. 52 ; 1916, pp. 451—463) based upon the following characters :

I. *Polychrosis* : male with a hair pencil from base of hind tibia ; hind wing veins M_2, M_3, and Cu_1 equidistant ;

II. *Lobesia* : male without a pencil on hind tibia ; hind wing veins M_3 and Cu_1 closely approximate, M_2 remote.

MEYRICK (1927, pp. 563—564) completed these characters with mention of a short pectination of the antennae in *Polychrosis.*

HEINRICH (1926, pp. 87—97) previously placed a group of North American species, related to the above mentioned genera, under *Polychrosis* and wrote : "Eventually we shall probably have to restrict the two genera (*Polychrosis* and *Lobesia*) to their respective types and find new designations for the species now referred to them."

DIAKONOFF (1950, pp. 290—293), in his revision of the type specimens of certain Oriental species described by E. MEYRICK, placed the species of the group in question under *Lobesia* and regarded this genus as an intermediate one between *Bactra* Stph. and *Polychrosis* Rag.

The present paper records the results of studies of its author which testify against an insufficient and rather misrepresented morphological basis given by KENNEL and MEYRICK for *Lobesia* and *Polychrosis* and point to the necessity of a new classification of the Holarctic species ranged under these genera. The author is greatly obliged to Dr. A. DIAKONOFF (Leiden, Netherlands) for his important information on some systematic problems.

The study of several Palearctic species proved that *L. reliquana* (Hb.), the genotype of *Lobesia*, has a developed hair pencil on the hind tibia of the male and that this pencil is inversely absent in some other species usually regarded as *Polychrosis,* e.g. in *P. artemisiana* (Z.), *P. porrectana* (Z.), *P. fuligana* (Hw.), *P. littoralis* (Westw.), *P. subherculeana* (Fil.), and *P. cognata* (Obr.). This pencil is diversely long in different species and there exists no constant correlation of this secondary sexual character with other ones.

The veins M_3 and Cu_1 of the hind wing in *reliquana* are closely approximated as a rule but individually they are sometimes also more or less separated in this species. In most species regarded as *Polychrosis* the characters of the above mentioned veins vary considerably and the wing venation often approaches that of *reliquana*. The pectination of the antennae in the last species is similar to that of *Polychrosis*, i.e. shortly ciliate.

Therefore, not any of the characters given originally as generic ones has such a value and the classification of the species of the group in question needs another morphological basis. The most important and stable basis for a new classification of the group is in the morphology of genitalia because they show the greatest correlation with some other characters.

Genus **Lobesia** Guenée, 1845

Lobesia Guenée, Ann. Soc. Ent. France, 1845, ser. 2, vol. 3, p. 297 ; Genotype (logotype): *Asthenia reliquana* Hb., 1825 = *Tortrix permixtana* (Hb.) Hw. (1811 ; non Schiff., 1776), selected by Fernald, Gen. Tortr., 1908, p. 33.

Polychrosis Ragonot, Ann. Soc. Ent. France, 1894, vol. 63, p. 209 ; Genotype (orthotype): *Phalaena Tortrix botrana* Schiff., 1776.

Byrsoptera Lower, Trans. Proc. & Rep. Roy. Soc. S. Austral., 1901, vol. 25, p. 77; Genotype (haplotype): *Byrsoptera xylistis* Low., 1901.

Thorax with posterior crest.

Fore wing smooth ; costa frequently with pterostigma ; termen convex or more or less straight ; no costal fold in male ; 12 veins ; R_1 and R_2 not reaching costa ; R_2 nearer R_1 than R_3, strongly sinuate and in its upper part approximate to R_3 ; R_3, R_4, and R_5 more or less approximate, both the last rarely connate ; R_5 to termen ; upper internal vein of cell from between R_1 and R_2 or absent ; M_2, M_3, and Cu_1 at termen not approximate ; Cu_2 from cell slightly beyond $^2/_3$.

Hind wing with 8 veins ; R and M_1 approximate towards base, rarely anastomosing or stalked ; M_2, M_3, and Cu_1 mostly equidistant, not approximate at termen, both of the last sometimes approximate at base, stalked or coincident ; in the male no sclerotized ridge or thickening of the membrane at inner margin.

Hind tibia of the male without or with a hair pencil from base ; 1st abdominal segment of the male with a ventral pocket of papilliform scales on each side (fig. 1).

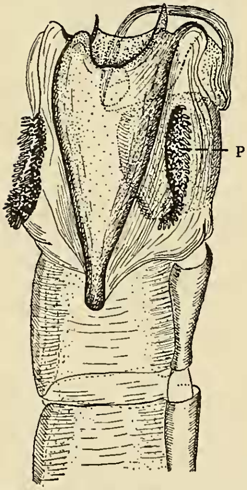

Fig. 1. Basal part of the abdomen of *Lobesia reliquana* (Hb.), ventral view (preparation Nr. T. 1181, Museum of Zoology, Kiev). p — pocket of papilliform hairs.

Male genitalia (fig. 2, 3, 5) with valva moderately long ; outer surface of valva unspined ; processus basalis of valva short or moderately long ; cucullus separated, prolonged, more or less broad, well-spined throughout ; sacculus always well-developed, sparsely haired, variously shaped ; spine clusters Spc_1 and Spc_2 strongly developed, the first at or near base of cucullus, the second on tip of sacculus ; neck of valva sometimes weak. Uncus very reduced or absent ; socii rudimentary or undeveloped ; gnathos simple, mostly

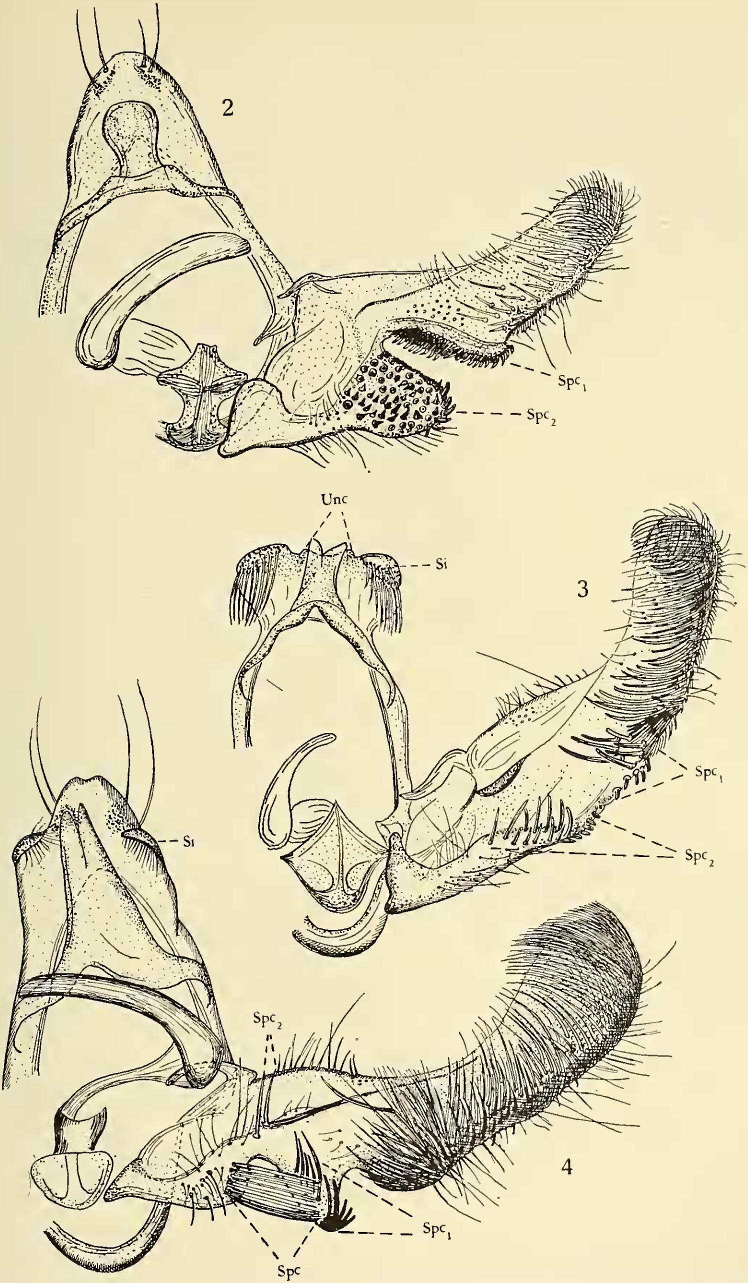

Fig. 2. Male genitalia of *Lobesia euphorbiana* (Frr.). Kamenets-Podolsk, Ukraina (preparation Nr. T. 201, Museum of Zoology, Kiev). Fig. 3. Male genitalia of *Lobesia reliquana* (Hb.). Jamelna, Halicia or. (preparation Nr. T. 1181, Museum of Zoology, Kiev). Fig. 4. Male genitalia of *Paralobesia andereggiana* (HS.). Hungaria (preparation Nr. T. 1183, Museum of Zoology, Kiev). Unc — uncus; Si — socii; Spc$_1$ and Spc$_2$ — spine clusters of valvae; Spc — hair cluster on the sacculus of the valva.

membranous. Aedoeagus rather long, slender, slightly curved ; no cornuti.

Female genitalia (cf. PIERCE & METCALFE, 1922, t. 14 : *reliquana, abscisana, littoralis,* and *euphorbiana)* without lamina dentata or with a weak chitinous spot at the corpus bursae. Ductus bursae moderately long, with strong colliculum. Distal edge of 8th sternite more or less chitinized ; lamella antevaginalis sometimes developed.

The fore wing veins R_1 and R_2 are very typical for this and partly for the next genus; these veins do not reach to the costa and end as microscopically fine, pointed wrinkles. Another typical character is the pterostigma. It is a thickened membrane of the fore wing near the costa. The pterostigma has a cross-wrinkled structure and the scales form there many dense and short transverse rows. In

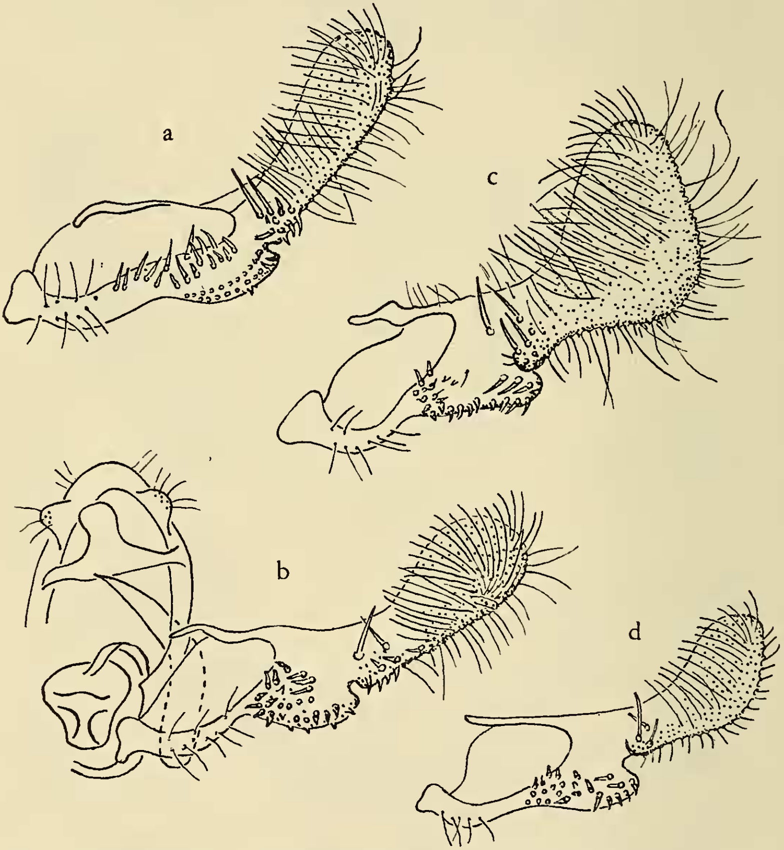

Fig. 5. Male genitalia of some Palearctic species of *Lobesia* Gn.: *a. cinerariae* (Nolck.), Gallia m. (preparation Nr. M. 880); *b. porrectana* (Z.), Hispania (prep. Nr. M. 879); *c. bicinctana* (Dup.), ? Patria (prep. Nr. M. 875); *d. artemisiana* (Z.), Fiume (prep. Nr. M. 877); (preparations of the Zoological Collection of the Bavarian State, Munich, Germany).

some species the pterostigma is underdeveloped; it varies also individually. A good figure of pterostigma is given by KENNEL (1908, t. 2 fig. 9—10).

In the male genitalia the development of both the spine clusters of valvae, Spc_1 and Spc_2, is very characteristic. In *reliquana* (fig. 3) they form a row of short intermediate spines at the neck of the valva and are therefore only scarcely separated one from another. In other species the cluster Spc_1 is usually more or less widely separate from Spc_2 (fig. 2, 5). On account of a membranous structure of the valva neck both the clusters appear sometimes being closely approximated (fig. 5c). In *botrana* (cf. HEINRICH, 1926, t. 7 fig. 41) the cluster Spc_1 is absent or hidden among the cucullus spines. The socii are either rudimentary (fig. 3, 5b) or absent, replaced occasionally by separate bristles (fig. 2). A pretented absence of gnathos in *reliquana* (DIAKONOFF, 1950, p. 291) is a delusion; in point of fact the gnathos is in this species scarcely chitinized but in general similar to that of other species of the genus.

The Holarctic species of the genus form two groups which can be considered as subgenera :

I. Subgenus *Lobesia* Gn. (subgenotype : *reliquana* Hb.). Male genitalia with both clusters Spc_1 and Spc_2 well developed.

II. Subgenus *Polychrosis* Rag. (subgenotype : *botrana* Schiff.). The cluster Spc_1 of the valva undifferentiated from the spines of cucullus.

The genus is of a Holarctic, Oriental, and Australian distribution. The systematic position of Ethiopian and Neotropic species is unascertained for the time being. In the Holarctic region the genus is represented chiefly in the Palearctic subregion. The Nearctic species *L. spiraeae* (McD.) shows in its genitalia a resemblance to the Palearctic *L. bicinctana* (Dup.), to which it is very similar also in its markings. The larva of *spiraeae* lives in the immature flower-heads of Spiraea ; the foodplants of the larva of *bicinctana* are different Allium species (RAGONOT, 1894, p. 209). The author is inclined to regard *spiraeae* and *bicinctana* as conspecific. The Nearctic species *L. carduana* (Busck) has male genitalia of the *Lobesia* type. If the wing venation of this species would prove to be not absolutely typical for the genus, *carduana* would nevertheless be placed under *Lobesia*.

In the following list of Holarctic species of the genus the systematic position of the species marked with (?) it was not possible to verify.

LIST OF HOLARTIC SPECIES OF *Lobesia*

I. Subgenus Lobesia Gn.

euphorbiana (Frr.)

euphorbiana Freyer, Neuere Beitr. Schm.-Kunde, 1842, vol. 4, p. 47, t. 318 fig. 4 (*Sericoris*). — Anglia; Europa s. & c.; Gallia; Sicilia; Balticum or.; Polonia m.; Ukraina ; Asia min.

herculeana (Kenn.)

herculeana Kennel, Iris, 1900, vol. 13, p. 139, t. 5 fig. 15 (*Polychrosis*). — Asia c.

subherculeana (Fil.)

subherculeana Filipjev, Jahrb. Martjanov, Staatsmus., 1925, vol. 2, p. 60 (*Polychrosis*). — Sibiria c.m.

schmidti (Rbl.)

schmidti Rebel, Zschr. Österr. Ent.-Ver., 1936, vol. 21, p. 22, t. 2 fig. 1 (*Polychrosis*). — Hispania.

bicinctana (Dup.)

bicinctana Duponchel, Hist. Nat. Lép. France, Suppl., 1844, vol. 4, p. 508, t. 89 fig. 2 (*Grapholitha*); *lugdunana* Guenée, Ann. Soc. Ent. France, 1845, ser. 2, vol. 3, 1845, p. 298 (*Lobesia*). — Europa s., c.m. & m.; Ukraina m.; Asia min.

ssp. spiraeae McDunnough, Canad. Ent., 1938, vol. 70, p. 92, t. 7 fig. 1 (genit. ♂) (*Polychrosis*). — Nova Scotia; Canada m. or.

cognata (Obr.)

cognata Obraztsov. Mitt. Münch. Ent. Ges. (1945—1949) 1949, vol. 35—39, p. 200, fig. 1 (genit. ♂) (*Polychrosis*). — Ukraina m.; Hispania.

characterana (Car.)

characterana Caradja, Iris, 1916, vol. 30, p. 59 (*Polychrosis*). — Sibiria m. or.

artemisiana (Z.)

artemisiana Zeller, Isis, 1847, p. 27 (*Sericoris*); *trifasciana* Herrich-Schäffer, Syst. Bearb. Schm. Eur., 1851, vol. 4 /Tortr., 1848, t. 26 fig. 184; non bin./, p. 217 (*Sericoris*); *amaryllana* Millière, Mém. Soc. Sci. Nat. Cannes, 1875, vol. 5, p. 82 (*Eudemis*); *glebifera* Meyrick, Exot. Micr., 1912, vol. 1, p. 34 (*Polychrosis*). — Europa oc., c., or. & m.; Asia min.; Sibiria m. or.

fuligana (Hw.)

fuligana Haworth, Lep. Brit., 1811, p. 465. (*Tortrix*); *abscissana* Doubleday, Synon. List Brit. Lep., 1850, p. 23 (*Sericoris*); *abscisana* Lederer. Wien. Ent. Mschr., 1859, vol. 3, p. 329 (*Lobesia*). — Anglia; Belgia; Batavia.

ssp. **pullana** Kennel, Iris, 1900, vol. 13, p. 140, t. 5 fig. 16—17 (*Polychrosis*). — Ukraina m.; Rossia m. or.

indusiana (Z.)

indusiana Zeller, Isis, 1847, p. 667 (*Sericoris*); *staticeana* Millière, Ann. Soc. Linn. Lyon. (1868) 1869, vol. 17, p. 20, t. 95 fig. 9—14 (*Lobesia*). — Gallia m.; Hispania; Sicilia; ? Bulgaria.

confinitana (Stgr.)

confinitana Staudinger, Horae Soc. Ent. Ross., 1870, vol. 7, p. 226 (*Grapholitha*). — Graecia.

limoniana (Mill.)

limoniana Millière, Ann. Soc. Linn. Lyon, 1860, vol. 7, p. 212, t. 4 fig. 4—8 (*Sciaphila*). — Gallia m.; Hispania.

littoralis (Westw.)

/*litoralis* Curtis, Guide, 1831, p. 171 (*Cnephasia*); nom. nud./; *dubitana* (non Hb.) /Stephens, Syst. Cat. Brit. Ins., 1829, vol, 2, p. 191, Nr 7132 (*Eupoecilia*); indescr./ Wood, Ind. Ent., 1835, p. 166, t. 37 fig. 1138 (*Eupoecilia*); *littoralis* Westwood & Humphreys, Brit. Moths, 1845, vol. 2, p. 143, t. 88 fig. 13 (*Cnephasia*); *venustana* Douglas, Zool., 1846, vol. 4, p. 1269, fig. 6 (*Orthotaenia*); *morbidana* Doubleday, Synon. List. Brit. Lep., 1850, p. 23 (*Sericoris*); *hibernana* Staudinger, Stett. Ent. Ztg., 1859, vol. 20, p. 231 (*Sericoris*). — Europa (littor.) s., c. & m.; Africa s. oc.; Asia min.

ssp. *annetensis* Turner, Ent. Rec., 1934, vol. 46., p. 52 (*Polychrosis*). — Insulae Scilly.
ab. (*annetensis*) nigrescens Turner, l.c.

porrectana (Z.)

porrectana Zeller, Isis, 1847, p. 665 (*Sericoris*). — Gallia m.; Sardinia; Corsica; Italia c.; Sicilia; Hispania; Asia min.

fictana (Kenn.)

fictana Kennel, Iris, (1900) 1901, vol. 13, p. 258 (*Polychrosis, Eudemis*). — Syria; Palaestina.

attributana (Kenn.)

attributana Kennel, Iris, (1900) 1901, vol. 13, p. 259 (*Polychrosis, Eudemis*). — Taurus.

quaggana (Mn.)

quaggana Mann, Verh. z.-b. Ges. Wien, 1855, vol. 5, p. 557 (*Paedisca*); *restinctana* Turati, Atti Soc. Ital. Sci. Nat., 1913, vol. 51, p. 360, fig. 34—37 (*Olethreutes*). — Hispania; Italia; Sicilia; Sardinia; Corsica; Adria or.; Asia min.

helichrysana (Rag.)

helichrysana Ragonot, Bull. Soc. Ent. France, 1879, p. CXXXII (*Eudemis*); *elichrysana* Nolcken, Stett. Ent. Ztg., 1882, vol. 43, p. 185 (*Eudemis*); *helychrysana* Rebel, Stgr.-Rbl. Cat. Lep. Pal. Faun., 1901, vol. 2, p. 109, Nr. 1962 (*Polychrosis*). — Gallia m.; Iberia.

cinerariae (Nolck.)

quaggana (non Mn.) Millière, Iconogr. Descr. Chen. Lép., 1874, vol. 3, p. 420, t. 152 fig. 4—7 (*Eudemis*); *cinerariae* Nolcken, Stett. Ent. Ztg., 1882, vol. 43, p. 184 (*Eudemis*); *cinerariana* Walsingham, Ent. Mo. Mag., 1891, vol. 27, p. 142 (*Eudemis*). — Gallia m.; Hispania.

carduana (Busck)

carduana Busck, Journ. New York Ent. Soc., 1907, vol. 15, p. 134 (*Polychrosis*). — U.S.A. s. or & c. or.

reliquana (Hb.)

permixtana (non Schiff.); /Hübner, Samml. eur. Schm., Tortr., 1796—99, t. 12 fig. 75; non bin./ Haworth, Lep. Brit., 1811, p. 406 (*Tortrix*); *reliquana* Hübner, Verz. bek. Schm., 1825, p. 381 (*Asthenia*); *leucopterana* Frölich, Enum. Tortr. Wurt., 1828, p. 65 (*Tortrix*); *fischerana* Treitschke, Schm. Eur., 1835, vol. 10, part 3, p. 145 264 (*Cochylis*). — Europa; Asia c. & m. oc.; Sibiria m. or.; China; ? Japonia.

clarisecta Meyr.

clarisecta Meyrick, Exot. Micr., 1932, vol. 4, p. 308 (*Lobesia*). — Kaschmir.

dryopelta Meyr.

dryopelta Meyrick, Exot. Micr., 1932, vol. 4, p. 225 (*Lobesia*). — Japonia (Tokyo); Java; Ceylon.

(?) **thlastopa** Meyr.

thlastopa Meyrick, Iris, 1937, vol. 51, p. 181 (*Lobesia*). — China m. oc. (Yunnan).

(?) **neptunia** (Wlsm.)

neptunia Walsingham, Proc. Zool. Soc. Lond., 1907, p. 1000, t. 53 fig. 1 (*Polychrosis*). — Insulae Canariae (Teneriffa).

(?) **mechanodes** (Meyr.)

mechanodes Meyrick, Exot. Micr., 1936, vol. 4, p. 611 (*Polychrosis*). — China.

(?) **paraphragma** (Meyr.)

paraphragma Meyrick, Exot. Micr., 1922, vol. 2, p. 522 (*Polychrosis*). — China or.

(?) **isochroa** (Meyr.)

isochroa Meyrick, Ent. Mo. Mag. 1891, vol. 27, p. 12 (*Eudemis*). — Algeria.

II. Subgenus **Polychrosis** Rag.

botrana (Schiff.)

botrana Schiffermiller, Syst. Verz. Schm. Wien. Geg., 1776, p. 131 (*Phalaena*); *vitisana* Jacquin, Collectanea, 1788, vol. 2, p. 97 (*Phalaena*); *reliquana* (non Hb.) Treitschke, Schm. Eur., 1835, vol. 10, part. 3, p. 146, p. 264 (*Cochylis*); *rosmarinana* Millière, Ann. Soc. Linn. Lyon, (1865) 1866, vol. 13, p. 8, t. 63 fig. 9—11 (*Olindia*). — Europa oc., c. & m.; Rossia c.m. & m.; Africa s. oc.; Asia min.; Japonia.

Genus **Paralobesia** gen. nov.

Genotype : *Coccyx andereggiana* HS., 1851.
Polychrosis (non Rag.) Heinrich, Bull. U.S. Nat. Mus., 1926, no. 132, p. 87.

Characters as in *Lobesia,* except as follows :

The fore wing vein R_1 usually complete, only in exceptional cases not reaching costa ; R_2 mostly complete, more or less straight and parallel to R_1, usually from the middle between R_1 and R_3. Hind wing with M_3 and Cu_1 separate. Hind tibia of the male with a hair pencil from base.

Male genitalia (fig. 4) with a tuft of hair-like spines or modified scales (Spc) from base of sacculus ; cluster Spc_1 on a projection of the valva neck, more or less separated from the bristles of cucullus; cluster Spc_2 usually present, sometimes consisting of a few spines, rarely absent (*liriodendrana* Kearf.).

An often rather rectilinear vein R_2 of fore wing is an especially important character of the new genus, also the position of the cluster Spc_1 which in *Lobesia* usually appears next to the spines of cucullus, and the presence of the additional cluster Spc. In *Lobesia* there are only a few bristles present at sacculus and they are morphologically different from the cluster Spc of the new genus.

The relations of the genus are generally Nearctic. In the Palearctic fauna the genus is represented only by the genotype.

List of Holartic species of *Paralobesia*

andereggiana (HS.)

andereggiana Herrich-Schäffer, Syst. Bearb. Schm. Eur., 1851, vol. 4, p. 225; Tortr., 1854, t. 58 fig. 416 (*Coccyx*); *kreithneriana* Hornig, Verh. z.-b. Ges. Wien, 1882, vol. 32, p. 279 (*Eudemis*); *andereggi* Ragonot, Ann. Soc. Ent. France, 1894, vol. 63, p. 210 (*Polychrosis*). — Europa c.m.; Croatia ; Taurus.

liriodendrana (Kearf.)

liriodendrana Kearfott, Trans. Amer. Ent. Soc., 1904, vol. 30, p. 293, t. 19 fig. 6, t. 20 fig. 10 (*Polychrosis*); *magnoliana* Kearfott, ibid., 1907, vol. 33, p. 6 (*Polychrosis*). — U.S.A. or.

viteana (Clem.)

viteana Clemens, Proc. Acad. Nat. Sci. Philad., 1860, p. 359 (*Endopiza*); *vitivorana* Packard, Guide Study Ins., 1869, p. 336 (*Penthina*); *botrana* (non Schiff.) Fernald, Dyar's List N. Amer. Lep., Bull. U.S. Nat. Mus., (1902) 1903, vol. 52, p. 449, Nr. 5005 (*Polychrosis*). — U.S.A. s. or & c. or.

monotropana (Heinr.)

monotropana Heinrich, Bull. U.S. Nat. Mus., 1926, no. 132, p. 91, t. 61 fig. 366 (genit. ♂) (*Polychrosis*). — U.S.A. s. or.

cypripediana (Forbes)

cypripediana Forbes, Mem. Cornell Univ. Agr. Exp. Sta., 1924, vol. 68, p. 473 (*Polychrosis*). — Canada m. c.

rhoifructana (Kearf.)

rhoifructana Kearfott, Trans. Amer. Ent. Soc., 1904, vol. 30, p. 296, t. 19 fig. 3, t. 20 fig. 12 (*Polychrisis*). — U.S.A. s. or.

yaracana (Kearf.)

yaracana Kearfott, Trans. Amer. Ent. Soc., 1907, vol. 33, p. 5 (*Polychrosis*); *signifera* Meyrick, Ent. Mo. Mag., 1912, vol. 48, p. 34 (*Polychrosis*). — Canada m. or.; U.S.A. s. or.

exasperana (McD.)

exasperana McDunnough, Canad. Ent., 1938, vol. 70, p. 91, fig. c (genit. ♀) (*Polychrosis*). — Nova Scotia.

spiraeifoliana (Heinr.)

spiraeifoliana Heinrich, Proc. Ent. Soc. Washington, 1923, vol. 25, p. 106 (*Polychrosis*). — U.S.A. s. or.

palliolana (McD.)

palliolana McDunnough, Canad. Ent., 1938, vol. 70, p. 91, fig. d (genit. ♀) (*Polychrosis*). — Nova Scotia; Canada m. or.

piceana (Freem.)

piceana Freeman; Canad. Ent., 1941, vol. 73, p. 124, t. 8 fig. 1 (genit. ♂) (*Polychrosis*). — Canada m. or.

aemulana (Heinr.)

aemulana Heinrich, Bull. U.S. Nat. Mus., 1926, no. 132, p. 94, t. 29 fig. 180 (genit. ♀), t. 61 fig. 369 (genit. ♂) (*Polychrosis*). — U.S.A. s.or.

vernoniana (Kearf.)

vernoniana Kearfott, Trans. Amer. Ent. Soc., 1907, vol. 33, p. 7 (*Polychrosis*); *ambrosiana* Kearfott, ibid., p. 8 (*Polychrosis*). — U.S.A. s. or. & c. m.

aruncana (Kearf.)

aruncana Kearfott, Trans. Amer. Ent. Soc., 1907, vol. 33, p. 5 (*Polychrosis*). — U.S.A. s. or.

slingerlandana (Kearf.)

slingerlandana Kearfott, Trans. Amer. Ent. Soc., 1904, vol. 30, p. 295, t. 19 fig. 4, t. 20 fig. 11 (*Polychrosis*). — U.S.A. s. or.

blandula (Heinr.)

blandula Heinrich, Bull. U.S. Nat. Mus., 1926, no. 132, p. 96, t. 61 fig. 368 (genit. ♂) (*Polychrosis*). — Canada m. c.

cyclopiana (Heinr.)

cyclopiana Heinrich, Bull. U.S. Nat. Mus., 1926, no. 132, p. 97, t. 30 fig. 185 (genit. ♀), t. 60 fig. 364 (genit. ♂) (*Polychrosis*). — U.S.A. s. or.

LITERATURE

DIAKONOFF, A. 1950. "The Type Specimens of Certain Oriental Eucosmidae and Carposinidae, etc." Bull. Brit. Mus. (N.H.), Ent., vol. 1, pp. 275—300, plates 3—8.

HEINRICH, C. 1926. "Revision of the North American Moths of the Subfamilies Laspeyresiinae and Olethreutinae." Bull. U.S. Nat. Mus., no. 132, 216 pp., 76 plates.

KEARFOTT, W. D. 1904. "North American Tortricidae." Trans. Amer. Ent. Soc., vol. 30, pp. 287—299, plates 19—20.

KENNEL, J. v. 1908—21. "Die Palaearktischen Tortriciden." Zoologica, vol. 21 (54), 742 + (55) pp., (1) + 24 plates.

McDUNNOUGH, J. 1938. "Some Apparently New Eucosmidae." Canad. Ent., vol. 70, pp. 90—100.

MEYRICK, E. 1927. A Revised Handbook of British Lepidoptera. London, 914 pp.

MEYRICK, E. 1935. In : A. CARADJA & E. MEYRICK. Materialen zu einer Microlepitopteren-Fauna der chinesischen Provinzen Kiangsu, Chekiang und Hunan. Berlin, 96 pp.

PIERCE, F. N. & J. W. METCALFE, 1922. The Genitalia of the Group Tortricidae of the Lepidoptera of the British Islands. Oundle, Northants, XVII + 101 pp., 34 plates.

RAGONOT, E. L. 1894. "Notes synonymiques sur les Microlépidoptères et description d'espèces peu connues ou inédites." Ann. Soc. Ent. France, vol. 63, pp. 161—226, pl. 1.

REBEL, H. 1901. In : O. STAUDINGER & H. REBEL, Catalog der Lepidopteren des palaearktischen Faunengebietes, vol. 2. Berlin, 368 pp.

Ontvangen ter publicatie de 2 April 1951